



*Satellite-based monitoring service
of water and sewer networks*

SATELLITE MONITORING FOR UTILITIES AND MULTI-UTILITIES OPERATORS

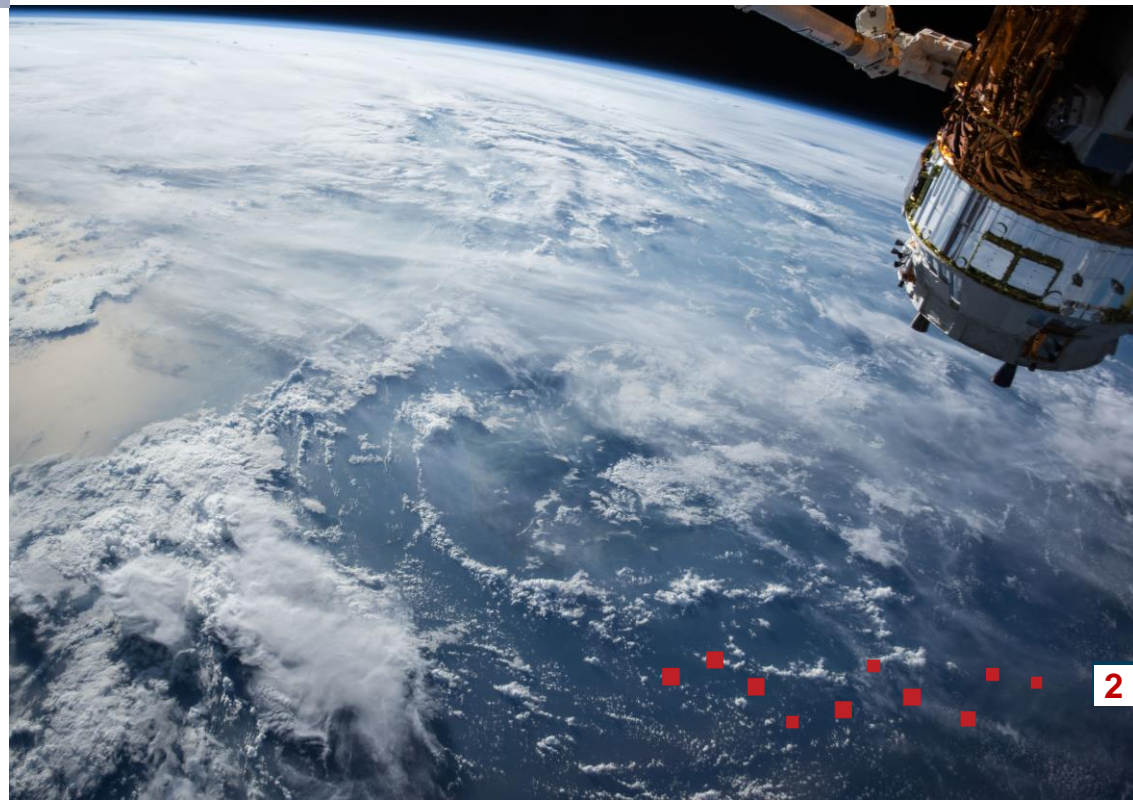
Avoiding network breakdowns through **preventive maintenance** is one of the main goals of network operators. With prevention, maintenance costs are reduced, service is improved, people's safety is ensured and environment and asset are protected.

An effective leakage prevention can be achieved by promptly identifying the stressed network segments and by activating maintenance interventions **before the network breaks** as an alternative to extraordinary maintenance operations carried out with a broken pipe.



In urban and extra-urban areas, superficial ground movements could be **signs of stress** on both underground and superficial pipelines. In the city, the failure of the road surface may indicate that the **collapse** of the pipeline is already underway.

Satellite remote sensing allows to identify and monitor land surface movements and to promptly identify potential stressed segments to be inspected with traditional survey methods. This method **improves the efficiency and effectiveness of inspections** carried out along the networks, allowing a **predictive maintenance**.





Rheticus®

NETWORKALERT

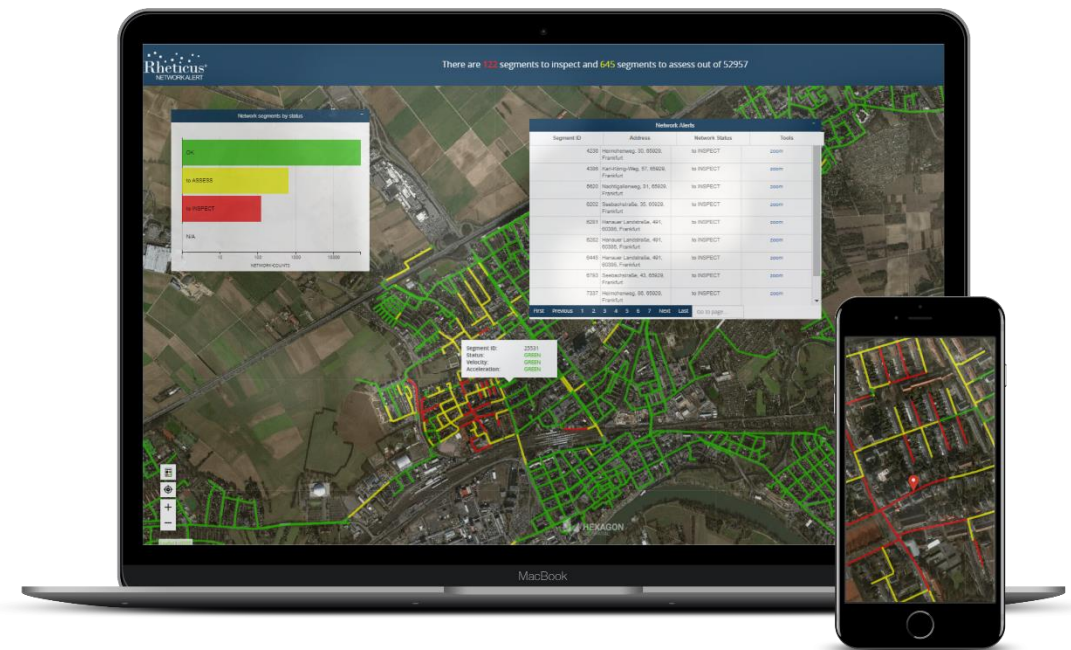
Rheticus® Network Alert is the geo-information service for the assessment of stressed water and sewerage networks through the continuous monitoring of the surface millimetric displacements of the territory.

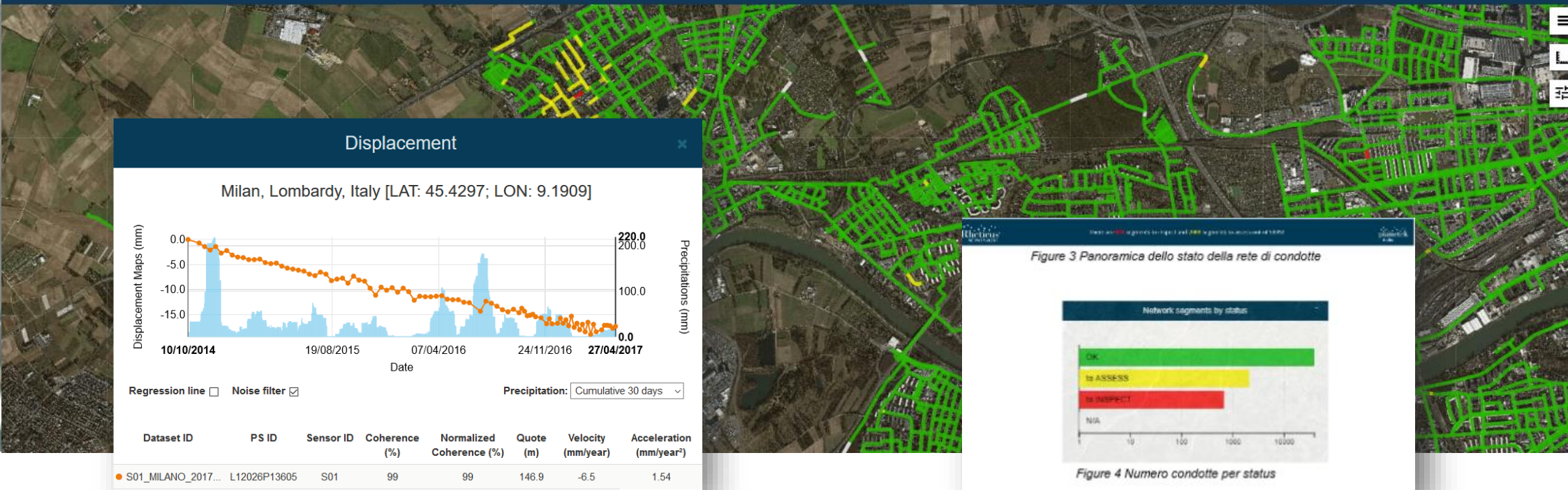


Developed with satellite technology, **Rheticus® Network Alert** regularly provides information on the network segments with an high level of damage.

The periodic reporting highlights the sections of the network on which further inspection have to be addressed to check the pipeline's integrity.

The service is available as a **dynamic dashboard** or **periodic report** sent by e-mail and containing detailed information about the user's plant.





Rheticus® Network Alert offers a synoptic view of the stress level of the network that is segmented into sections with different length depending on the associated attributes and thematized according to the assigned level of stress: stable segments in green, those to be monitored in yellow and in segments to be inspected in red. Each segment is associated with a graph showing the movements historical trend. The **summary reports**, periodically updated, are sent user by email in PDF format while the full info are available through the **interactive** geoportal available 24/7 from any device.

Features



Fresh data based on continuous satellite monitoring



Downloadable reports, maps, geo-analytics



Ready-to-use and always updated insight



Historical analysis included



Cloud service available 24/7 from any device



Input for further M2M applications



Technical assistance

Benefits

- ✓ Reduced inspection time and costs;
- ✓ No need to install sensor no maintenance is required;
- ✓ Updated knowledge and immediate insight of land and infrastructure stability;
- ✓ Monitoring and high precision measurements for precise displacement trend analysis;
- ✓ Reduced costs and increased efficiency in network operations and maintenance.



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Thanks to Rheticus® Network Alert, we detected 40% more critical segments. This confirmed the goodness and effectiveness of the approach adopted to prevent damage to the sewage system. We found the radar satellite interferometry the most accurate and convenient detection method to prevent and detect potential breaks to the sewage and water networks.

Paolo Gelli, HERA Group



Rheticus® SERVICES

SATELLITE-BASED MONITORING SERVICES AND PERIODIC REPORTING IN SUPPORT OF PRODUCTION ACTIVITIES, ENVIRONMENTAL PROTECTION AND CITIZENS SAFETY

Rheticus® DISPLACEMENT	Periodic monitoring of soil surface millimeter movements due to slow landslides and / or subsidence in urban and extra-urban areas with indicators for the entity of displacements and accelerations over time.
Rheticus® SAFELAND	Periodic reporting of the stability of the territory through the segmentation of wide areas and their classification based on the movement trends and anomalies detected from satellite.
Rheticus® SAFEWAY	Periodic reporting service for monitoring and checking the stability of road infrastructures such as roads, railways and airports. The segmented infrastructures are classified on the basis of speed and acceleration measured over time
Rheticus® NETWORK ALERT	Periodic reporting service that informs about the stress level of water and sewage networks and other underground networks pipes. The infrastructures are classified on the basis of the stress level related to ground movements..
Rheticus® URBAN DYNAMICS	Periodic reporting of the urban dynamics for the land change monitoring caused by construction works and implementation of local or highest level plans.
Rheticus® WILDFIRES	High-performing geo-information service for burnt area detection, fire severity classification, vegetation regrowth monitoring and detection of anomalous transformations within burnt areas or with restrictions.
Rheticus® MARINE	Periodic monitoring of coastal seawater quality and marine resources through the measurement of parameters as chlorophyll, turbidity, temperature and algae proliferation.
Rheticus® AQUACULTURE	Periodic monitoring and reporting of molluscs and fish growth trends to support and optimize aquaculture activities and plant management. Insightful data are also provided to estimate the best harvesting time and the amount of production.
Rheticus® OENOVIEW	Periodic reporting of the vegetative vigor index of the vineyards for the optimization of agronomic practices and the selective collection of grapes for the production of high quality wines.





info@rheticus.eu
www.rheticus.eu



developed by Planetek Italia S.r.l. - www.planetek.it